

# DATA SHEET

## GAS DISCHARGE TUBES TELEPHONE INTERFACE

2R-8x6(S) series

RoHS compliant & Halogen free



Product specification— November 05, 2018 V.0



## Gas Discharge Tube (GDT) Data Sheet

### Features

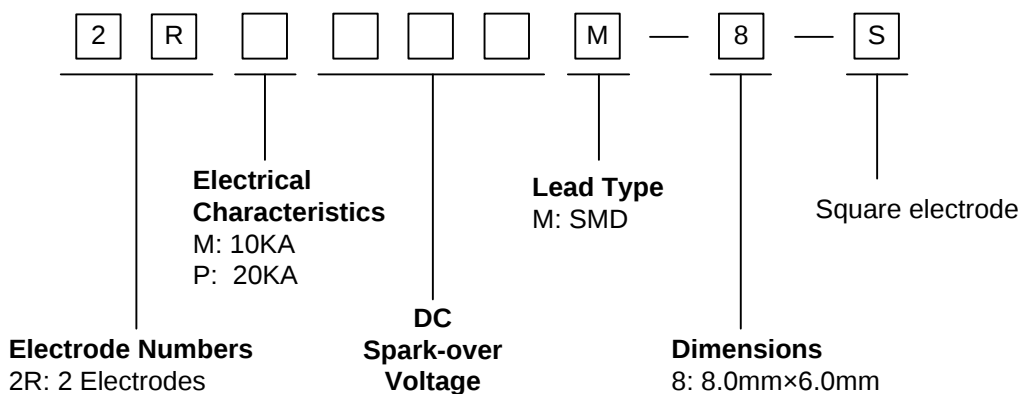
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/ $\mu$ s.
- Stable breakdown voltage.
- High insulation resistance.
- Low capacitance ( $\leq 1.5$ pF)
- High holdover voltage
- Large absorbing transient current capability.
- Micro-Gap Design
- Size: 8.0mm\*6.0mm
- Storage and operating temperature: -40°C ~ +85°C
- Meets MSL level 1, per J-STD-020
- Safety certification: E244458 & E327997



### Applications

- Repeaters, Modems.
- Telephone Interface, Line cards.
- Data communication equipment.
- Line test equipment

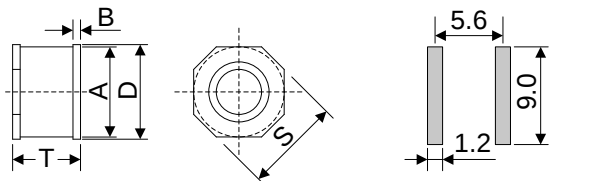
### Part Number Code



### Marking

**B** : BrightKing Logo  
 2RM090-8 : Device Marking Code  
 YXXX : Date Code

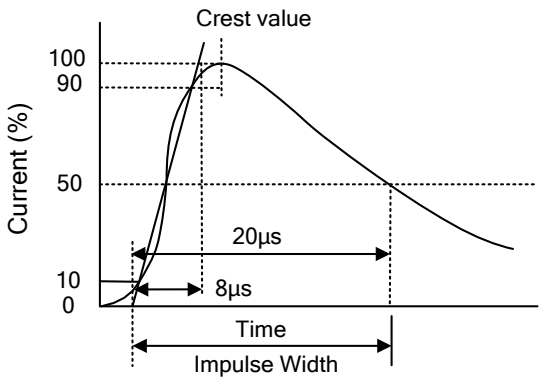
## Dimensions

|  | Symbol | Dimension (mm) |           |
|-----------------------------------------------------------------------------------|--------|----------------|-----------|
|                                                                                   |        | Spec.          | Tolerance |
|                                                                                   | A      | 8.00           | ±0.20     |
|                                                                                   | B      | 0.50           | ±0.10     |
|                                                                                   | D      | 8.30           | ±0.20     |
|                                                                                   | T      | 6.00           | ±0.25     |
|                                                                                   | S      | 9.00           | ±0.40     |

## Electrical Characteristics

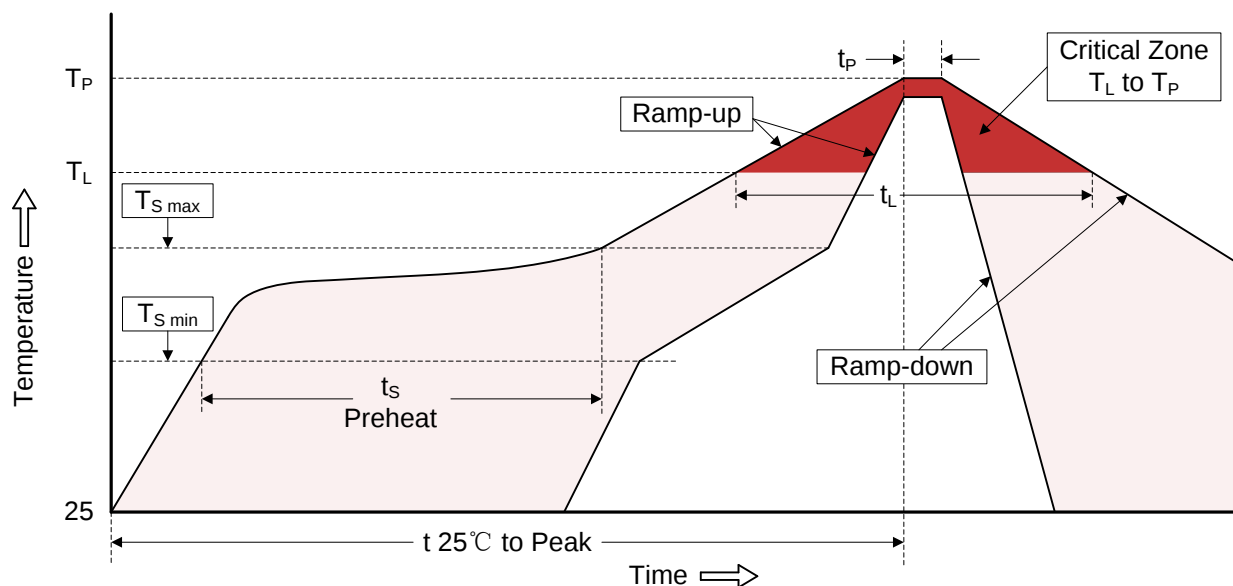
| Part Number  | DC Spark-over Voltage | Maximum Impulse Spark-over Voltage | Nominal Impulse Discharge Current | Single Impulse Discharge Current | Alternating Discharge Current | Impulse Life      | Minimum Insulation Resistance |      | Maximum Capacitance | Device Marking Code |
|--------------|-----------------------|------------------------------------|-----------------------------------|----------------------------------|-------------------------------|-------------------|-------------------------------|------|---------------------|---------------------|
|              | 100V/s                | 1000V/μs                           | 8/20μs<br>10times                 | 10/350μs                         | 50Hz, 1sec                    | 10/1000μs<br>100A | Test Voltage                  | (GΩ) | 1MHz                |                     |
|              | (V)                   | (V)                                | (KA)                              | (KA)                             | (A)                           | (times)           | DC(V)                         |      | (pF)                |                     |
| 2RM075M-8-S  | 75±20%                | 600                                | 10                                | 2.5                              | 10                            | 500               | 25                            | 1.0  | 1.5                 | 2RM075-8            |
| 2RM090M-8-S  | 90±20%                | 600                                | 10                                | 2.5                              | 10                            | 500               | 50                            | 1.0  | 1.5                 | 2RM090-8            |
| 2RM150M-8-S  | 150±20%               | 600                                | 10                                | 2.5                              | 10                            | 500               | 100                           | 1.0  | 1.5                 | 2RM150-8            |
| 2RM230M-8-S  | 230±20%               | 700                                | 10                                | 2.5                              | 10                            | 500               | 100                           | 1.0  | 1.5                 | 2RM230-8            |
| 2RM250M-8-S  | 250±20%               | 700                                | 10                                | 2.5                              | 10                            | 500               | 100                           | 1.0  | 1.5                 | 2RM250-8            |
| 2RM300M-8-S  | 300±20%               | 900                                | 10                                | 2.5                              | 10                            | 500               | 100                           | 1.0  | 1.5                 | 2RM300-8            |
| 2RM350M-8-S  | 350±20%               | 900                                | 10                                | 2.5                              | 10                            | 500               | 100                           | 1.0  | 1.5                 | 2RM350-8            |
| 2RM420M-8-S  | 420±20%               | 1000                               | 10                                | 2.5                              | 10                            | 500               | 100                           | 1.0  | 1.5                 | 2RM420-8            |
| 2RM470M-8-S  | 470±20%               | 1000                               | 10                                | 2.5                              | 10                            | 500               | 250                           | 1.0  | 1.5                 | 2RM470-8            |
| 2RM600M-8-S  | 600±20%               | 1200                               | 10                                | 2.5                              | 10                            | 500               | 250                           | 1.0  | 1.5                 | 2RM600-8            |
| 2RM800M-8-S  | 800±20%               | 1400                               | 10                                | 2.5                              | 10                            | 500               | 250                           | 1.0  | 1.5                 | 2RM800-8            |
| 2RM1000M-8-S | 1000±20%              | 1700                               | 10                                | 2.5                              | 10                            | 500               | 250                           | 1.0  | 1.5                 | 2RM1000-8           |
| 2RP075M-8-S  | 75±20%                | 600                                | 20                                | 5.0                              | 20                            | 500               | 25                            | 1.0  | 1.5                 | 2RP075-8            |
| 2RP090M-8-S  | 90±20%                | 600                                | 20                                | 5.0                              | 20                            | 500               | 50                            | 1.0  | 1.5                 | 2RP090-8            |
| 2RP150M-8-S  | 150±20%               | 600                                | 20                                | 5.0                              | 20                            | 500               | 100                           | 1.0  | 1.5                 | 2RP150-8            |
| 2RP230M-8-S  | 230±20%               | 700                                | 20                                | 5.0                              | 20                            | 500               | 100                           | 1.0  | 1.5                 | 2RP230-8            |
| 2RP250M-8-S  | 250±20%               | 700                                | 20                                | 5.0                              | 20                            | 500               | 100                           | 1.0  | 1.5                 | 2RP250-8            |
| 2RP300M-8-S  | 300±20%               | 900                                | 20                                | 5.0                              | 20                            | 500               | 100                           | 1.0  | 1.5                 | 2RP300-8            |
| 2RP350M-8-S  | 350±20%               | 900                                | 20                                | 5.0                              | 20                            | 500               | 100                           | 1.0  | 1.5                 | 2RP350-8            |
| 2RP420M-8-S  | 420±20%               | 1000                               | 20                                | 5.0                              | 20                            | 500               | 100                           | 1.0  | 1.5                 | 2RP420-8            |
| 2RP470M-8-S  | 470±20%               | 1000                               | 20                                | 5.0                              | 20                            | 500               | 250                           | 1.0  | 1.5                 | 2RP470-8            |
| 2RP600M-8-S  | 600±20%               | 1200                               | 20                                | 5.0                              | 20                            | 500               | 250                           | 1.0  | 1.5                 | 2RP600-8            |
| 2RP800M-8-S  | 800±20%               | 1400                               | 20                                | 5.0                              | 20                            | 500               | 250                           | 1.0  | 1.5                 | 2RP800-8            |
| 2RP1000M-8-S | 1000±20%              | 1700                               | 20                                | 5.0                              | 20                            | 500               | 250                           | 1.0  | 1.5                 | 2RP1000-8           |

## Electrical Ratings

| Items                              | Test Condition/Description                                                                                                                                                                                                                          | Requirement                 |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| DC Spark-over Voltage              | The voltage is measured with voltage ramp $dv/dt=100V/s$ .                                                                                                                                                                                          | To meet the specified value |
| Maximum Impulse Spark-over Voltage | The maximum impulse spark-over voltage is measured with voltage ramp $dv/dt=1000V/\mu s$ .                                                                                                                                                          |                             |
| Impulse Discharge Current          | <p>Maximum 8/20<math>\mu s</math> surge current that can be applied between two electrodes, 5 positive and 5 negative surges, with 3 minutes interval time.</p>  |                             |
| Alternating Discharge Current      | Rated RMS value of AC current at 50Hz, 1 sec. for 10 times with interval time 3 min.                                                                                                                                                                |                             |
| Insulation Resistance              | The resistance of gas tube shall be measured between two electrodes.                                                                                                                                                                                |                             |
| Capacitance                        | The capacitance of gas tube shall be measured between two electrodes. Test frequency: 1MHz                                                                                                                                                          |                             |

## Recommended Soldering Conditions

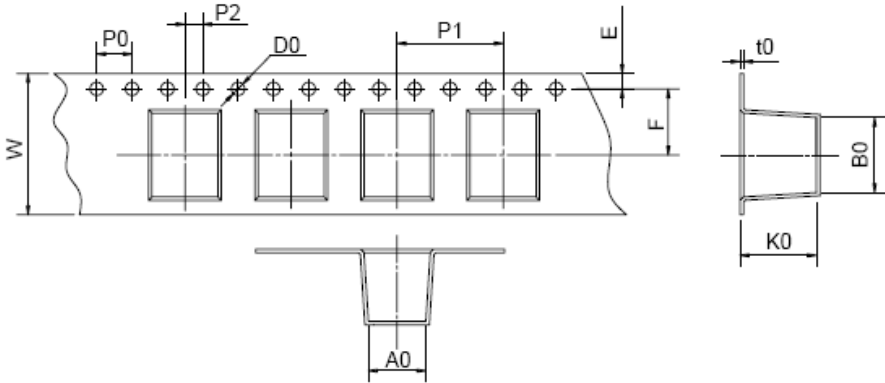
### Reflow Soldering



### Recommended Conditions

| Profile Feature                                                                                                                                                                                         | Pb-Free Assembly                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Average ramp-up rate ( $T_L$ to $T_P$ )                                                                                                                                                                 | 3°C/second max.                  |
| Preheat <ul style="list-style-type: none"> <li>-Temperature Min (<math>T_{S\ min}</math>)</li> <li>-Temperature Max (<math>T_{S\ max}</math>)</li> <li>-Time (min to max) (<math>t_s</math>)</li> </ul> | 150°C<br>200°C<br>60-180 seconds |
| $T_{S\ max}$ to $T_L$ <ul style="list-style-type: none"> <li>-Ramp-up Rate</li> </ul>                                                                                                                   | 3°C/second max.                  |
| Time maintained above: <ul style="list-style-type: none"> <li>-Temperature (<math>T_L</math>)</li> <li>-Time (<math>t_L</math>)</li> </ul>                                                              | 217°C<br>60-150 seconds          |
| Peak Temperature ( $T_P$ )                                                                                                                                                                              | 260°C                            |
| Time within 5°C of actual Peak Temperature ( $t_P$ )                                                                                                                                                    | 20-40 seconds                    |
| Ramp-down Rate                                                                                                                                                                                          | 6°C/second max.                  |
| Time 25°C to Peak Temperature                                                                                                                                                                           | 8 minutes max.                   |

## Packaging

| Tape                                                                               | Symbol           | Dimension (mm) |           |
|------------------------------------------------------------------------------------|------------------|----------------|-----------|
|                                                                                    |                  | Spec.          | Tolerance |
|  | W                | 16.00          | ±0.20     |
|                                                                                    | P0               | 4.00           | ±0.10     |
|                                                                                    | P1               | 12.00          | ±0.20     |
|                                                                                    | P2               | 2.00           | ±0.10     |
|                                                                                    | D0               | 1.55           | ±0.05     |
|                                                                                    | E                | 1.75           | ±0.10     |
|                                                                                    | F                | 7.50           | ±0.10     |
|                                                                                    | A0               | 6.35           | ±0.10     |
|                                                                                    | K0               | 6.55           | ±0.10     |
|                                                                                    | B0               | 8.65           | ±0.10     |
|                                                                                    | t0               | 0.50           | ±0.10     |
| Reel                                                                               | D                | 330.00         | ±1.00     |
|                                                                                    | d                | 13.00          | ±0.50     |
|                                                                                    | L                | 20.00          | ±0.50     |
|                                                                                    | t                | 2.00           | ±0.20     |
|                                                                                    | Quantity: 600pcs |                |           |

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